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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/09/2003

Kevin Zugibe

HUDSON 208

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MILDE & HOFFBERG, LLP
10 BANK STREET
SUITE 460
WHITE PLAINS, NY 10606

EXAMINER

VON BUHR, MARIA N

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/730,791	Applicant(s) ZUGIBE ET AL.	
	Examiner M.N. VON BUHR	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20040318</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Examiner acknowledges receipt of Applicant's response to the previous Office action, received 26 February 2008; which cancels claims 1-17 and introduces claims 43-59. Claims 18-59 are now pending in this application.
2. Applicant's election without traverse of Invention II, encompassing claims 18-42, in the reply filed on 26 February 2008 is acknowledged.
3. Applicant's claim for domestic priority under 35 U.S.C. §119(e) is acknowledged.
4. Examiner acknowledges receipt of Applicant's information disclosure statements, received 18 March 2004, with accompanying reference copies. These submissions are in compliance with the provisions of 37 CFR 1.97. Accordingly, they have been taken into consideration for this Office action.
5. The replacement sheets for Figures 1-9 were received on 13 December 2004. These drawings are acceptable.
6. Figures 1-6B should be designated by a legend such as -- Prior Art --, because only that which is old is illustrated. See MPEP §608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "thermodynamic analysis" and "consistency analysis" (claims 18, 21, 43 and 46), "predicting a cost-benefit of a service operation" (claims 31 and 56), "performing a service" (claim 32), all of claims 33 and 58, all of claims 38 and 59, "thermodynamically modeling" (claim 39), and "servicing the refrigeration system" (claim 57) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
8. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

9. The incorporation of essential material by reference to a publication inserted in the specification is improper. Applicant has incorporated an article by reference, at page 6 of the instant specification. If, during the prosecution of this application, such material becomes essential to the claims, Applicant will be required to amend the disclosure to include the material incorporated by reference. The amendment would have to be accompanied by an affidavit or declaration executed by Applicant, or a practitioner representing Applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

10. The following is a quotation of the first paragraph of 35 U.S.C. §112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 18-59 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent claims 18, 21, 43 and 46 each perform and utilize a “thermodynamic analysis” and utilize a “consistency analysis.” However, the instant specification is unclear as to what these analyses actually encompass, because these phrases are not used in the description of the instant invention. The instant specification, as a whole, discusses many types of information/data and examination of such data, but does not correlate such discussion with any “type” of analysis. In other words, the instant specification does not define what constitutes a “thermodynamic analysis” and a “consistency analysis.” Therefore, it is unclear

what such phrases refer to. Hence, it is unclear what Applicant had possession of, and whether such was characterizable as a “thermodynamic analysis” and a “consistency analysis.”

Independent claim 39 claims the step of “thermodynamically modeling” a refrigeration system. However, the instant specification is unclear with regard to what this would constitute/encompass, since this phrase is not used in the description of the instant invention. Although the description does mention “modeling,” there is no provision for “thermodynamically modeling.” Hence, it is unclear what Applicant had possession of, and whether such was characterizable as “thermodynamic modeling.”

12. In addition/alternatively, claims 18-59 are rejected under 35 U.S.C. §112, first paragraph, because the specification, while being enabling for the use of various examinations for interpreting various types of data and generic modeling, does not reasonably provide enablement specifically for a “thermodynamic analysis” and “consistency analysis” (as per independent claims 18, 21, 43 and 46), nor for “thermodynamically modeling” (independent claim 39). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims, since there is no correlation between the various examinations and the modeling described in the specification and the instant claim language “thermodynamic analysis,” “consistency analysis” and “thermodynamic modeling.” One of ordinary skill in the art would not be able to determine which aspects of the disclosure are actually encompassed by such phrases, since they are not used in the specification nor defined in any way.

13. Claims 39 and 50 are objected to as being grammatically awkward (“altering at a refrigerant purity...” and “wherein an operating point the ...,” respectively). Correction is required.

14. The following is a quotation of the second paragraph of 35 U.S.C. §112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which Applicant regards as his invention.

15. Claims 18-59 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

In claim 18, the term “useful” is deemed a relative term which renders the claim indefinite. The term “useful” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In this regard, it is unclear what would fall within the scope of “physical parameters useful for a thermodynamic analysis.” Also, there is no clear structural connection for “an output for presenting an

estimate of deviance,” while such estimate being “based on said thermodynamic analysis and said consistency analysis” is vague and indefinite, with no clear metes and bounds. In other words, the claim appears to be incomplete, as failing to provide clear structural relationships or a clear nexus between the claimed elements. In addition, the step of “outputting an estimate of deviance” has no clear and proper functional antecedence, since no actual determination of such an entity has been provided for, such that it can be output.

As per claims 19 and 20, there is no clear nexus between these limitations and the apparatus of parent claim 18, since there is no structural relationship between the instantly claimed “means for altering a process variable” (claim 19) and “control for altering physical parameters” (claim 20) and the input, processor and output of parent claim 18.

In claim 21, the posed task of “determining a deviance from optimum” does not appear to be accomplished by the body of the claim. The steps of obtaining physical parameters, performing a thermodynamic analysis, and determining consistency of the thermodynamic analysis do not provide for any deviance determination, but instead appear to be preliminary to any such deviance determination, while the step of “outputting an estimate of deviance” is a conclusory step. Furthermore, such estimate being “based on said thermodynamic analysis and said consistency analysis” is vague and indefinite, with no clear metes and bounds. Hence, the claim appears to be incomplete, as failing to accomplish the posed task. In addition, the step of “outputting an estimate of deviance” has no clear and proper functional antecedence, since no actual determination of such an entity has been provided for, such that it can be output. Further, there is no clear and proper antecedence for “said consistency analysis,” since inconsistent terminology has been used.

In claims 25 and 49, there is no clear and proper antecedent basis for “the determined system characteristic,” since inconsistent terminology has been used.

In claims 26, 30 and 51, there is no clear and proper antecedent basis for “the refrigerant” nor “the evaporator.” Similarly applies to claims 34 and 35.

In claim 29, there is no clear and proper antecedent basis for “the operating point.”

In claim 39, the predicting step appears to be incomplete, since it is unclear upon what an alteration would have a thermodynamic effect. Hence, the claim appears to be incomplete.

In claim 43, an estimate of deviance being “based on said thermodynamic analysis and said consistency analysis” is vague and indefinite, with no clear metes and bounds. In addition, the step of “presenting an estimate of a deviance” has no clear and proper functional antecedence, since no actual determination of such an entity has been provided for, such that it can be presented.

In claims 44 and 45, there is no clear nexus between these limitations and those of parent claim 43, which presents ambiguity with regard to any flow of processing/interrelationship amongst the steps.

In claim 46, there is no clear and proper functional antecedence for “outputting an estimate of deviance,” when no determination of such an estimate has been provided for, such that it can be output. Further, there is no clear and proper antecedence for “said consistency analysis,” since inconsistent terminology has been used.

The remainder of the claims are rejected as necessarily incorporating the above-noted ambiguities of their parent claims.

16. The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 18-59 are rejected under 35 U.S.C. §103(a), as being unpatentable over Hebert (U.S. Patent No. 7,139,564; newly cited), in view of Applicant’s admitted prior art (at pages 3-7 of the instant specification).

As per the claims, Hebert discloses a “system for providing ... equipment performance and efficiency analysis” (the abstract) for a refrigeration embodiment (col. 3, line 35; col. 6, lines 14-15; col. 7, lines 48-51). In this regard, Hebert teaches, at cols. 6-14, a detailed HVAC implementation of a “methodology whereby field located technician/engineer can utilize computer system to analyze field acquired data [sic], utilizing all available equipment, data, thermodynamic data [sic], electrical data, etc to provide analysis of field located equipment” (col. 6, lines 22-24), wherein ““Home” computer uses all field-acquired data to search and integrate with available data banks ... and using calculation algorithms available in calculation program to calculate or determine: a) Current system efficiency b) Estimated current annual cost of operation c) All current equipment problems (possible) d) Potential savings (plus cost and payback) for 1) All current problems solved (that can be solved by each solution and by combined solutions) 2) Change out old equipment to new equipment by efficiency available 3) Adding 1 or more efficiency enhancing products to old equipment by each product and by combined products 4) Combination of 2) and 3) above” (col. 8, lines 18-34). To perform this analysis, the system of Hebert uses multiple known characteristics of the refrigeration system (analogous to the instantly claimed “model”) and operational data

measurements for the refrigeration system (col. 6, line 25 - col. 7, line 47), and further teaches that “for specific applications such as water cooled equipment, chillers, refrigeration equipment, etc, additional and/or different data points, observations and equipment date [sic] will need to be entered on "forms" specific to application” (col. 7, lines 48-52). The analysis of Hebert is inherently thermodynamic, due to the types of data collected and types of comparisons made. Also, Hebert further teaches that these analyses are used to calculate adjustments (at least col. 10, line 42), which is analogous to the instantly claimed “controls for altering physical parameters/process variables” and “closed loop control,” and to perform cost-based determinations (col. 6, lines 58-59; col. 8, lines 24-34; col. 13, line 15 - col. 14, line 8; col. 14, lines 29-56).

As best understood by Examiner, in view of the ambiguities noted above, Hebert teaches Applicant’s invention substantially as instantly claimed. However, as best understood by Examiner, it appears that Hebert does not teach the instantly claimed “consistency analysis.” However, the broadest reasonable interpretation of such a phrase, without clear guidance from the instant specification (as noted above), is to perform some sort of error and/or verification procedures. In this regard, it is very well known in the control arts to perform periodic error checks of the control system, in order to maintain reliable operation. Accordingly, it would have been obvious, to one having ordinary skill in the art, at the time the instant invention was made, to include such error checking (i.e.; consistency analysis) in the system of Hebert, to provide the well-known benefit of increased system reliability.

Further as best understood by Examiner, in view of the ambiguities noted above, Hebert teaches Applicant’s invention substantially as instantly claimed. However, Hebert does not teach the instantly claimed altering of oil concentration and/or refrigerant charge. In this regard, Applicant admits to the well-known nature of such adjustments (at least at paragraphs 11 and 15-26, of U.S. Patent Application Publication 2007/0256432). It would have been obvious, to one having ordinary skill in the art, at the time the instant invention was made, to perform such adjustments in the system of Hebert, because Hebert teaches that “additional and/or different data points, observations and equipment date [sic] will need to be entered on "forms" specific to application” (col. 7, lines 48-52).

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. §103(a), Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for Examiner to consider the applicability of 35 U.S.C. §103(c) and potential 35 U.S.C. §102(e), (f) or (g) prior art under 35 U.S.C. §103(a).

19. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. Applicant is advised to carefully review the cited art, as evidence of the state of the art, in preparation for responding to this Office action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M.N. VON BUHR whose telephone number is (571)272-3755. The examiner can normally be reached on M-F (9am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/M.N. VON BUHR/
Primary Examiner, Art Unit 2121

MNVB
3/19/08